

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is requested. Claims 31-52 are in this application. Claims 1-30 have been cancelled. Claims 31-52 have been added to consolidate, provide further clarity, and alternately claim the present invention.

The Examiner rejected claim 22 under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement (and claims 19, 20, 21, and 23 as depending from claim 22). As noted above, claims 1-30 have been cancelled. As a result, applicant addresses this rejection with respect to new claims 38-40 and 49-51.

New claims 38 and 49 recite:

"forming a layer of third material over the planarized layer of material."

To satisfy the requirements of the first paragraph of section 112, applicant's originally-filed specification must provide support for the subject matter claimed in claims 38 and 49. Applicant's originally-filed specification teaches:

"Once planarized polysilicon layer 340 has been formed, a mask (not shown) is formed and patterned on planarized polysilicon layer 340.

Next, planarized polysilicon layer 340 is etched to form a number of structures, such as local interconnect lines, that are electrically connected to individual devices on wafer 300. (The locations where the structures make electrical contacts with the individual devices of wafer 300 are prepared before polysilicon layer 320 is deposited, and are assumed to be a part of wafer 300.)

Alternately, after the planarization step, one or more additional layers of material, such as materials which lower the resistance of polysilicon, can be formed over layer 340. The mask is then formed and patterned on the additional layers of material which are then etched along with planarized polysilicon layer 340 to form the structures (e.g., local interconnect lines)." (See page 5, line 16, to page 6, line 1.)

In the present case, the planarized layer of material required by claims 38 and 49 can be read to be planarized polysilicon layer 340, and the layer of third material can be read to be the mask or, alternately, an additional layer of material. Thus, from what applicant can determine, the limitations of claims 38 and 49 are fully supported and therefore satisfy the requirements of the first paragraph of section 112.

New claims 39 and 50 recite:

"wherein the layer of third material is a mask."

As noted above, applicant's originally-filed specification teaches that a mask can be formed on the planarized layer of polysilicon 340. Thus, from what applicant can determine, the limitations of claims 39 and 50 are fully supported and therefore satisfy the requirements of the first paragraph of section 112.

New claims 40 and 51 recite:

"wherein:

"the planarized layer of material includes doped polysilicon; and  
"the layer of third material lowers a resistance of doped polysilicon."

As noted above, applicant's originally-filed specification teaches that one or more additional layers of material, such as materials which lower the resistance of polysilicon, can be formed over the planarized layer of polysilicon 340. Thus, from what applicant can determine, the limitations of claims 40 and 51 are fully supported and therefore satisfy the requirements of the first paragraph of section 112.

In the Response to Arguments section, the Examiner argued that in the originally-filed specification there is no reference to a third layer of material as a material that lowers the resistance of planar polysilicon layer 340. Applicant acknowledges that the originally-filed specification does not use the phrase "a third

layer of material." However, when claiming an invention, applicant is not limited to the terms and phrases used in the specification, but may use any language to claim the invention.

When a claim recites a phrase that is not used in the originally-filed specification, such as a layer of third material, the question is whether the specification discloses a layer of material which can be read to be the layer of third material. As noted above, applicant's originally-filed specification discloses that one or more additional layers of material, such as materials which lower the resistance of polysilicon, can be formed over planarized polysilicon layer 340.

Thus, even though applicant's originally-filed specification does not use the phrase "a third layer of material," the claims none-the-less satisfy the requirements of the first paragraph of section 112 because language not used in the specification can be used to claim the invention as long as the claim language can be read onto structures and/or processes that were disclosed in the originally-filed specification.

In the Response to Arguments section, the Examiner also argued that a claim reciting a material that lowers the resistance of polysilicon would not be enabling because in the present case there is no implicit, explicit, or exemplary description of the type of material that would have the ability to reduce the resistance of polysilicon.

The question, however, is not whether a claim is enabling, but whether the specification is enabling. With respect to enablement, the Federal Circuit in Warner-Lambert Company, et al. v. Teva Pharmaceuticals USA, Inc., No. 041506p (08/11/05) stated:

"Accordingly, we have held that the specification must provide sufficient teaching such that one skilled in the art could make and use the full scope of the invention without undue experimentation. CFMT, Inc. v. Yieldup Int'l Corp., 349 F.3d 1333, 1338 (Fed. Cir. 2003); Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365 (Fed. Cir. 1997); In re Wands, 858 F.2d 731, 736-37 (Fed. Cir. 1988). "The key word is 'undue,' not experimentation." Wands, 858 F.2d at 737 (citation omitted). That is, the specification need only teach

those aspects of the invention that one skilled in the art could not figure out without undue experimentation. See, e.g., Nat'l Recovery Techs., 166 F.3d at 1196 ("The scope of enablement . . . is that which is disclosed in the specification plus the scope of what would be known to one of ordinary skill in the art without undue experimentation."); Wands, 858 F.2d at 736-37 ("Enablement is not precluded by the necessity for some experimentation such as routine screening.").

Thus, as indicated by the Warner-Lambert Court, the scope of enablement includes what is disclosed by the specification as well as what would be known to one of ordinary skill in the art without undue experimentation. As noted in a prior amendment, the use of metal silicides to reduce the resistance of polysilicon is well-known in the art.

As a result, even though applicant's specification does not provide any examples of the types of material that would have the ability to reduce the resistance of polysilicon, applicant's specification is none-the-less enabling because examples of the materials which can be used to lower the resistance of polysilicon are well-known in the art.

In the Response to Arguments section, the Examiner additionally argued that the recited claim is broad and that the first and third material layers can be any kind of material. As noted above, claims 40 and 51 recite that the planarized layer of material includes doped polysilicon, and the layer of third material lowers a resistance of doped polysilicon. Thus, the first and third material layers of claims 40 and 51 can not be any kind of material.

In the Response to Arguments section, the Examiner further argued that because the limitations were added via amendment, the limitations do not comply with section 132 which prohibits the introduction of new matter. However, in a new matter analysis, "[t]he fundamental inquiry is whether the material added by amendment was inherently contained in the original application." Schering Corp. et. al., v. Amgen Inc., No. 991251v2 (Fed. Cir. 08/01/00). Thus, there is no prohibition

to adding material as long as the material was inherently contained in the originally-filed specification.

In the present case, as noted above, even though applicant's originally-filed specification does not use the phrase "a layer of third material," applicant's originally-filed specification discloses that an additional layer of material, such as a material which lowers the resistance of polysilicon, can be formed over planarized polysilicon layer 340. Thus, the formation of a layer of third material over a planarized layer of polysilicon, where the layer of third material lowers the resistance, is inherently contained within the originally-filed application. As a result, the added material is not new matter.

Further, the written description requirement (as distinguished from the enablement requirement) of the first paragraph of section 112 and the new matter prohibition of section 132 are the same requirement. Moba v. Diamond Automation, 011063 (Fed. Cir. 04/01/03). Specifically, the Moba Court stated:

"This court's predecessor explained that the use of § 132 or § 112 was synonymous because "a rejection of an amended claim under § 132 is equivalent to a rejection under § 112, first paragraph,"

and

"("The question raised by these situations is most often phrased as whether the application provides 'adequate support' for the claim(s) at issue; it has also been analyzed in terms of 'new matter' under 35 U.S.C. § 132."); In re Wright, 866 F.2d 422, 424, 9 USPQ2d 1649, 1651 (Fed. Cir. 1989) ("When the scope of a claim has been changed by amendment in such a way as to justify an assertion that it is directed to a different invention than was the original claim, it is proper to inquire whether the newly claimed subject matter was described in the patent application when filed as the invention of the applicant. That is the essence of the so-called 'description requirement' of § 112, first paragraph.")."

Thus, claims 38-40 and 49-51 satisfy the written description requirement for the same reasons that claims 38-40 and 49-51 do not add new matter.

The Examiner rejected claims 1-2, 5-7, 10, 13-16, 19-25, and 27-30 under 35 U.S.C. §102(e) as being anticipated by Li et al. (U.S. Patent No. 6,162,368). As noted above, claims 1-30 have been cancelled. For the reasons set forth below, applicant respectfully traverses this rejection as applied to new claims 31-52.

Claim 31 recites, in part,

“chemically-mechanically polishing . . . , the layer of first material having a substantially planar top surface as soon as the layer of second material is substantially all removed from the layer of first material.”

Independent claim 42 recites the same limitations.

In rejecting the claims, the Examiner pointed to the layer of polysilicon 16 shown in FIG. 2A of Li as constituting the layer of first material required by the claims, and the native oxide layer 18 shown in FIG. 2A of Li as constituting the layer of second material. The Examiner also pointed to the chemical-mechanical polishing steps shown in FIGS. 2B-2E of Li as constituting the polishing element required by the claims.

Further, the Examiner argued that FIG. 2G of Li shows that polysilicon layer 16 (read by the Examiner to be the layer of first material) has a substantially planar top surface when oxide layer 18 (read by the Examiner to be the layer of second material) is substantially all removed from polysilicon layer 16. To remove any question as to the definition of the word “when,” new claim 31 recites that the layer of first material has a substantially planar top surface as soon as the layer of second material is substantially all removed from the layer of first material.

As a result, the chemical-mechanical polishing shown in Li can not be read to be the chemical-mechanical polishing element required by the claims. This is because, as shown in FIG. 2C of Li, as soon as native oxide layer 18 (read by the Examiner to be the layer of second material) is substantially all removed, polysilicon

layer 16 (read by the Examiner to be the layer of first material) does not have a substantially planar top surface, but instead has a severely non-planar top surface.

As a result, the chemical-mechanical polishing shown in Li can not be read to be the chemical-mechanical polishing required by the claims. Therefore, since the Li reference does not teach or suggest the chemical-mechanical polishing element required by claims 31 and 42, claims 31 and 42 are not anticipated by Li. In addition, since claims 32-41 depend either directly or indirectly from claim 31, these claims are not anticipated by Li for the same reasons as claim 31. Further, since claims 43-52 depend either directly or indirectly from claim 42, claims 43-52 are not anticipated by Li for the same reasons as claim 42.

The Examiner additionally rejected claim 17 under 35 USC §102(e) as being anticipated by Doan et al. (U.S. Patent No. 6,331,488). For the reasons set forth below, applicant respectfully traverses this rejection as applied to new claims 31 and 42.

Claim 31 recites:

"forming a layer of first material . . .

"forming a layer of second material to contact the top surface of the layer of first material, the layer of second material having a non-planar top surface."

chemically-mechanically polishing the non-planar top surface of the layer of second material and the layer of first material with a slurry to form a planarized layer of material.

In rejecting the claims, the Examiner pointed to the formation of material 24, which is shown in FIG. 4 of Doan, as constituting the element of forming a layer of first material required by the claims. In addition, the Examiner pointed to the formation of deformable material 30, which is shown in FIG. 5 of Doan, as constituting the element of forming a layer of second material required by the claims.

However, from what applicant can determine, the Doan reference fails to teach or suggest that deformable material 30 has a non-planar top surface that is chemically-mechanically polished. (See column 9, lines 10-16 of Doan.) As a result, claim 31 is not anticipated by Doan. In addition, since claims 32-41 depend either directly or indirectly from claim 31, claims 32-41 are not anticipated by Doan for the same reasons as claim 31.

New claim 42 recites:

“conformally forming a layer of first material to contact the top surface of the processed wafer.”

However, as shown in FIG. 4 of Doan, material 24 (read by the Examiner to be the layer of first material) is not conformally formed. As a result, claim 42 is not anticipated by Doan. In addition, since claims 43-52 depend either directly or indirectly from claim 42, claims 43-52 are not anticipated by Doan for the same reasons as claim 42.

The Examiner also rejected claim 9 under 35 USC §103(a) as being unpatentable over Li in view of Weling et al. (U.S. Patent No. 5,378,318).

New claims 37 and 48 recite:

“wherein the slurry etches the layer of first material and the layer of second material at approximately a same rate.”

Claims 37 and 48 depend directly from claims 31 and 42, respectively, and are patentable over Li in view of Weling et al. for the same reason that claim 31 and 42 are not anticipated by Li.

Thus, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

Dated: 11-7-05

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